JTRS Step 2A
Post Award Kickoff

26-27 October, 1999

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This briefing material generated under Government Agreement
DAAB15-00-3-0001 by the Raytheon Consortium

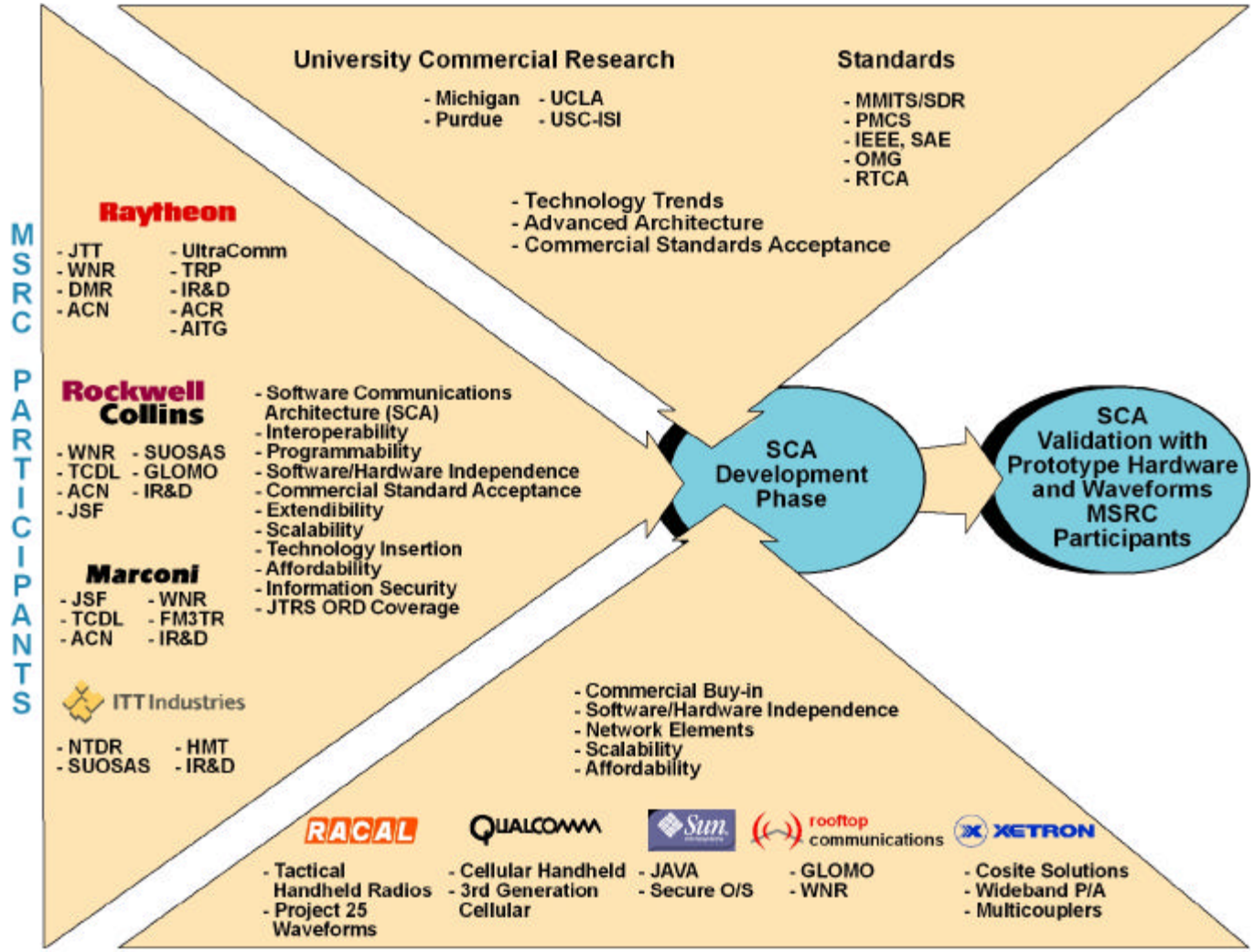
Kickoff Objectives

- Introduce the Consortium and JTRS JPO Teams
  - POC List, Sign In, Web Access List, Badge Access List
- Establish the Step 2A Program Plan
  - Plans for JTRS - JPO Interaction
  - Schedule of Events and Deliverables
  - MSRC Organization, Methodology, and Infrastructure
- Familiarize Teams with Planned Approach
  - IPT Makeup and Plans
  - Architecture Activities
  - Prototype Descriptions
- NSA / Security IPT Session
- CAIV Planning Session

JTRS Step 2A Program Objectives

- **Develop the Software Communications Architecture**
  - **Mature the Step 1 Architecture Definition**
  - **Set a Standard SCA for Future DoD & Commercial Radios**
- **Validate the SCA**
  - **Demonstrate Industry Can Produce Compliant Radios**
  - **Demonstrate Interoperability With Legacy Systems**
- **Permit the Earliest Practical Fielding of JTRS Radios**
  - **Implement ORD Waveforms, Applications, and Crypto**
- **Address Critical Issues for JTRS Step 3 Success**
  - **Obtain Widespread Industry Acceptance**
  - **Security / MLS**
  - **Affordability Assessment (CAIV)**
  - **Logistics Planning**

Raytheon Consortium Team

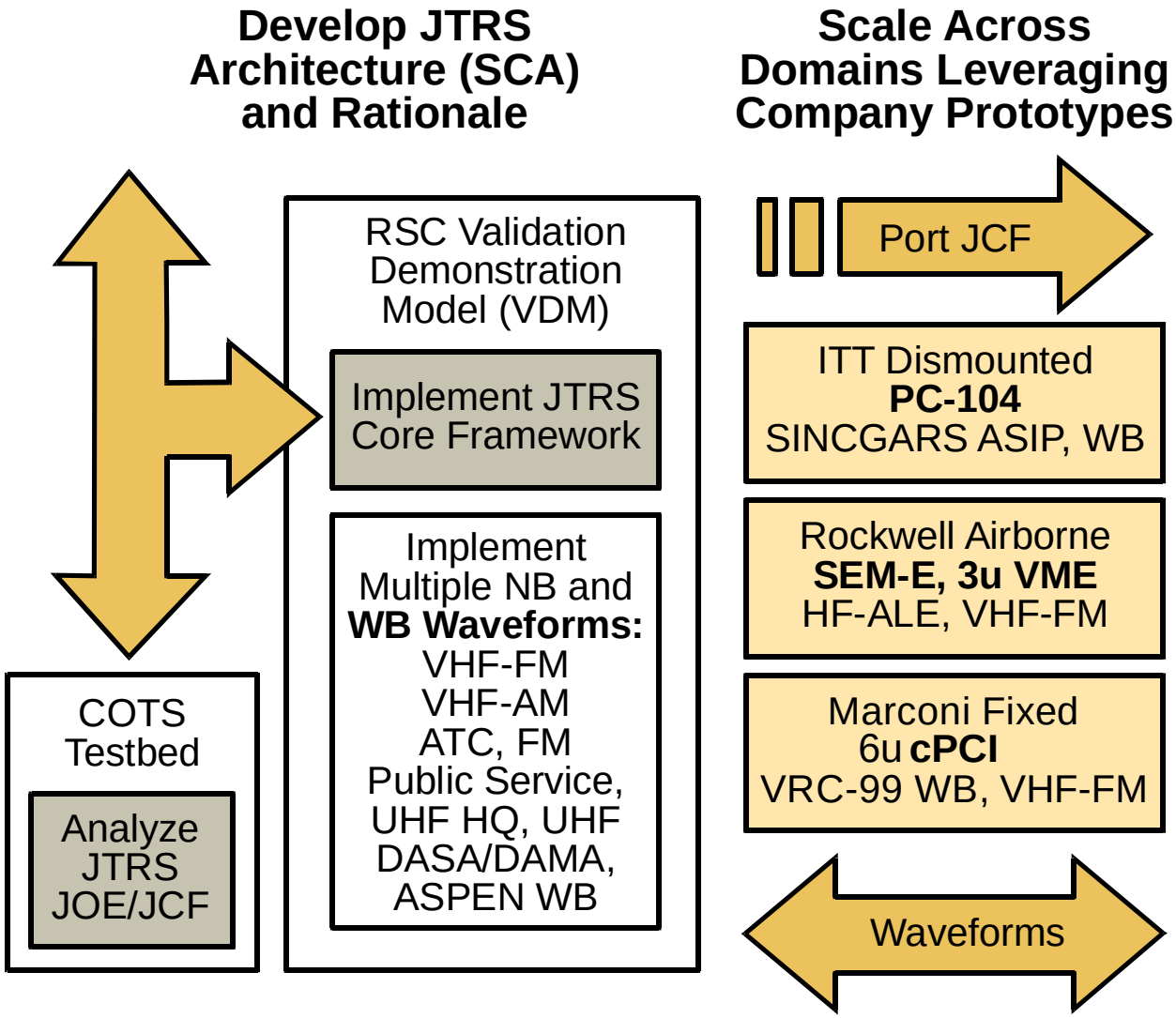


Modular Software-Programmable Radio Consortium (MSRC)

Consortium - JPO Interaction

- Contract Letters for Official Transmittal
- Program Office Coordination (JPO PMs with CMC)
- Government Participation in Consortium IPTs
- Monthly Program Reports
- Bi-Monthly IPRs
- Review of Submitted Documents
- CCB and SCA Knowledge Base Web Site
- Consortium Web Site Facilitates Exchange of E-Data
  - https://www.ftw.rsc.raytheon.com/jtrs
  - Government and Consortium Sections
  - Access Password Controlled by Raytheon IT Security
  - Category and Access Levels Selectable per Document

Program Overview



Program Overview - Baseline Prototypes

Proto Quantity	Proto-type Name (LRIP Domain)	Supplier	Form Factor /Bus	Frequency Range (MHz)	No. of Channels	INFOSEC	COTS Processor, Operating System, CORBA	Modem DSP	Waveforms
(2)	VDM (M/F,V,A^S,A^T)	Raytheon	3U and 6U 19" rack /CPCI	225 - 1000 WB 2 - 2000 NB	2 WB + 2 NB + GPS	Cornfield Module: KY-57/58, KGV-11DAMA, Partial KG-84, Partial KYV-5, TRANSEC: HQ, KGV-10	Pentium VxWorks Visibroker (2.0)	C549	VHF-AM, VHF-FM, VHF-ATC, VHF-Public Service, UHF-HQI/II, UHF DAMA/DASA, ASPEN-WB, (HF-ALE), (Partial SINCGARS ASIP/INC)
(2)	Dismounted (V,D)	ITT	PC-104 /PC-104Plus	30 – 450	2WB or 2NB +GPS	KY-57, KYV-5 KGV-10,Baton	Pentium VxWorks Visibroker (2.0)	C54X	Partial SINCGARS ASIP/INC, ITT-WB
(1)	Maritime / Fixed (M/F,V,A^S)	Marconi	6U 19"Rack /CPCI	2 – 2000	4 NB/WB +GPS	CTIC- cPCI module	PowerPC VxWorks ORB-Express (2.2)	C44	VRC-99, (VHF-FM)
(1)	Airborne (A^S,A^T)	Rockwell	SEM-E, 3u 19"Rack /VME	2 – 2000	4 NB +GPS	External KY-100 (GFE), KYV-5	PowerPC LynxOS ORB-Express (2.0, 2.2)	C6X	HF-ALE (VHF-FM)

V indicates vehicular,
D indicates dismounted,
H indicates handheld,

A^S indicates strategic airborne (widebody) platforms
A^T indicates tactical airborne (fighter) platforms,
M indicates maritime/fixed,

Parens = Ported Waveform

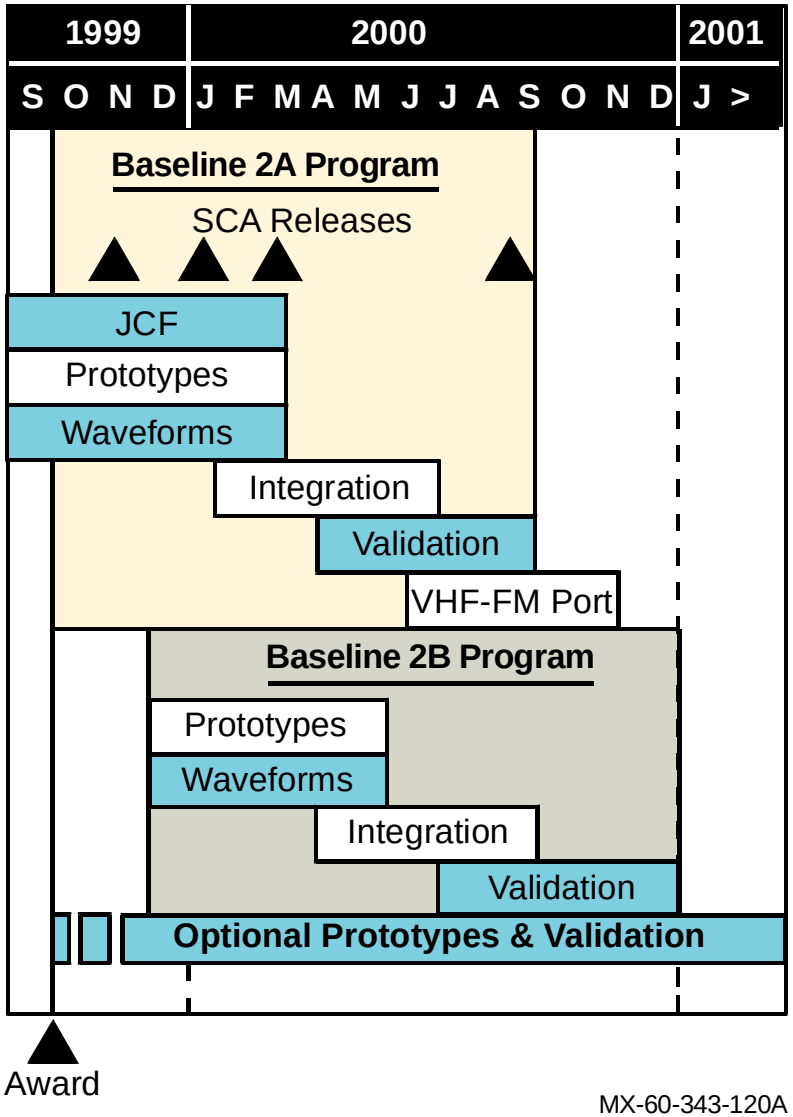
Deliverable Items

- Monthly Status Reports & Final Program Report
- CAIV Study and Final Report
- SCA Specification (3 releases) and Rationale Document
  - Includes MLS Study and Threat Assessment
  - CM Data Package
- Logistics Support Plan and CM Annex
- Prototypes:
  - VDM (2)
  - Dismounted (2)
  - Fixed / Maritime (1)
  - Airborne (1)
- Core Framework
  - Testbed (2) and Test Software
  - Prototype Software
- Validation Plan and Report

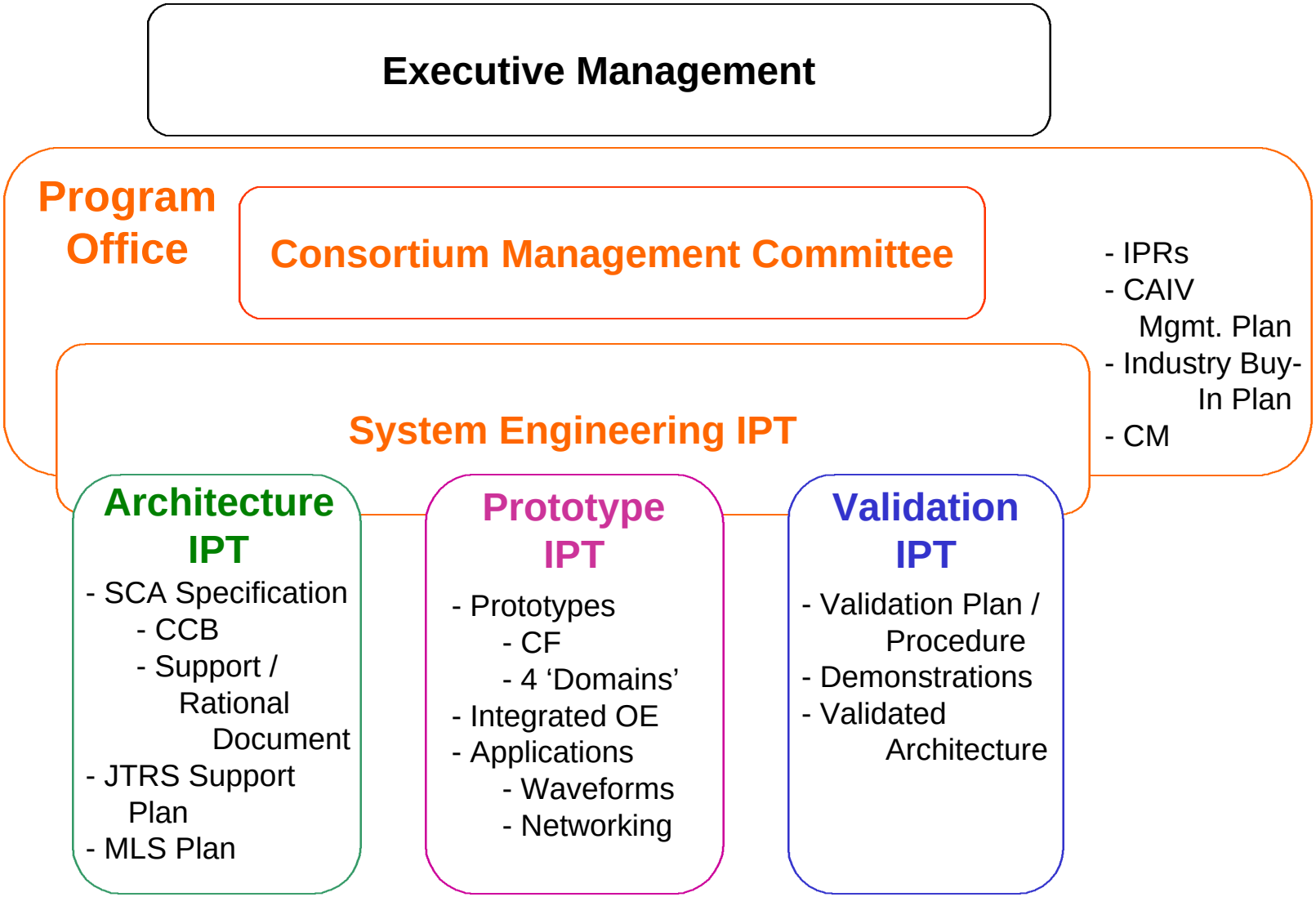
Prototype Deliverables

- Unit Hardware
- Hardware Interface Specification
- Operators Manual
- Environmental Requirements Study
- LRIP Performance Study
- Waveform and Other Application Software
  - Embedded in Units and copy of Object Code
- Software Product Spec (source code for eval only)
- Software Test Description
- Information for Stage 2 (experimental) Spectrum Supportability via DD Form 1494

Program Schedule



Consortium Organization



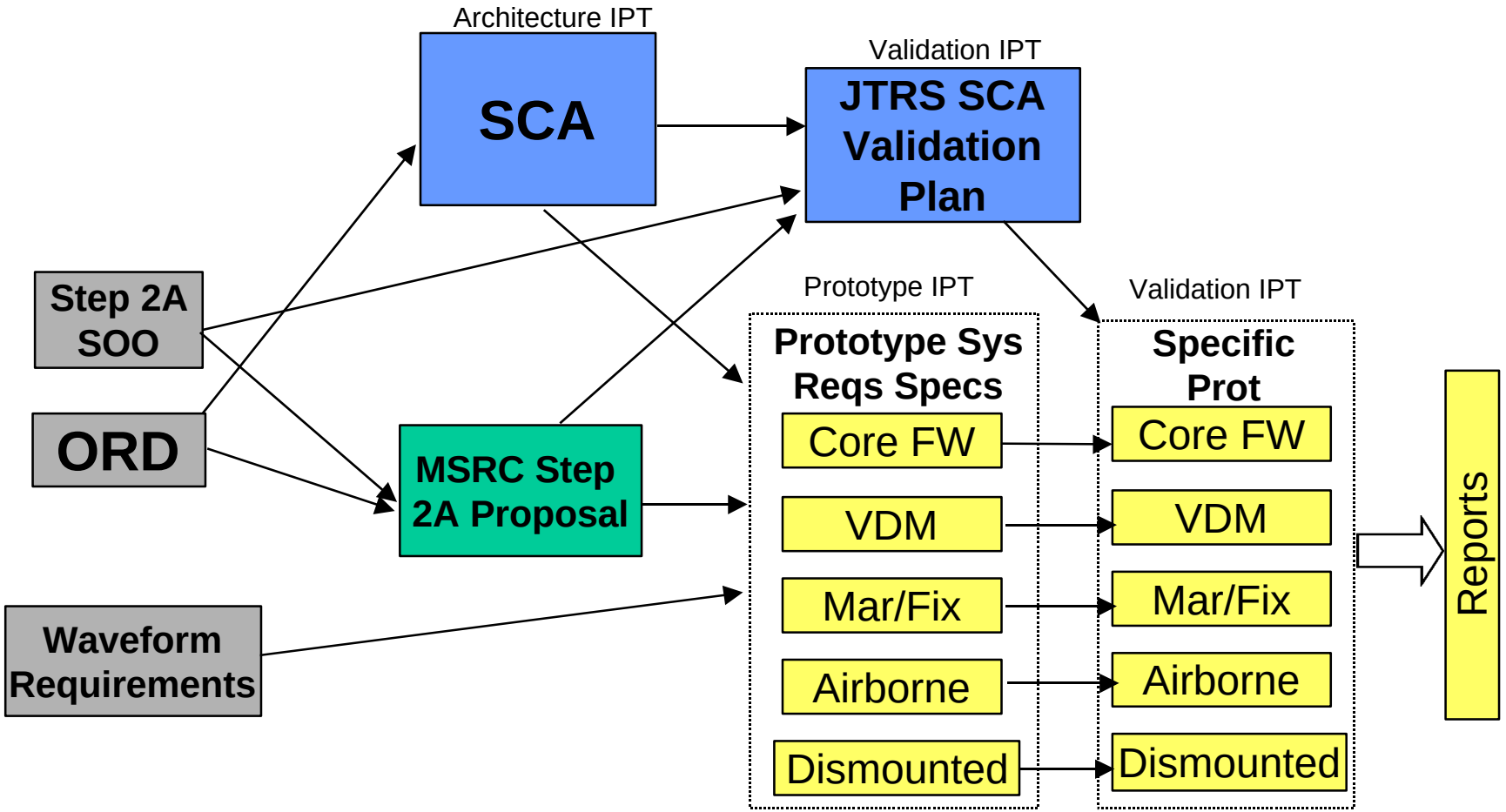
Systems IPT
Roles and Responsibilities (1)

- Provide the scope of work and top level tasks for the Architecture, Prototype Development and Validation IPTs.
- Resolve system-level issues from the third tier IPTs.
- Develop the requirements configuration process, complete requirements capture and maintain requirements database.
- Maintain the configuration of the delivered prototypes that are to be validated and the validation plans that perform validations.
- Support the CAIV activities of the CMC working group
- Serve as primary MSRC point of contact with government customer for engineering activities

Systems IPT
Roles and Responsibilities (2)

- Define and assign responsibility for any additional trade studies for Step 2A.
- Serve as sole MSRC contact for third party Step 2B engineering activities
- Develop the SCA Industry Buy-In/Commercial Acceptance Plan (Implementation through other IPTs and companies' activities)
- Coordinate common S/W and toolsets among MSRC
- Establish the topics and work with third tier IPTs and working groups on briefings for IPRs.
- Report weekly on status of system engineering activities and the activities of the third tier IPTs.

Requirements Traceability



Architecture IPT Charter

- Generate SCA Specification
  - Complete Architecture Definition
  - Submit documentation to Government for approval to post on JTRS web-site; address industry comments / input
  - Co-chair CCB
  - Support / Rationale Document
- Develop JTRS Support Plan
  - Support concepts for Step 3 programmable, modular radios
  - SCA CM annex (for Steps 2 & 3)
- Develop Security-related plans
  - MLS plan, key management plan
  - Software download / OTAP demo
  - Threat analysis

Architecture IPT Organization

- Core membership representing:
  - Software / hardware / networking / security / logistics / configuration management / government
- Working groups
  - SCA Definition - multiple task-oriented working groups staffed by software, hardware, networking, & security engineers
  - Security - MLS Study, Key Management Plan, Secure S/W Download / OTAP, Threat Analysis
  - Support - JTRS Support Plan

SCA Definition Working Groups

- Responsible for completing architecture definition and writing / updating SCAS & SRD
- Evaluate industry & Gov't comments / proposed additions
- Coordinate with Prototype IPT as prototypes are built
- Coordinate with Validation IPT as Validation Plan is generated
- Support interaction with various standards bodies (SDRF, OMG, IEEE, other)
- Support CCB activities as needed

SCA Definition WG Tasks

- Migrate “JCF” to “CF” for industry acceptance
  - SDRF has accepted the MSRC SCA as their baseline
  - STI commercial 'Domain' products part of CF
- Identify specific POSIX services required by SCA
- Identify specific CORBA services required by SCA
  - both will be in ver. 0.1
- Incorporate Government comments
  - ver. 0.1
- Complete / Expand hardware & software rule sets
  - will include levels of SCA-compliance or SCA-compatibility
  - examples of applications to specific domains in SRD

SCA Definition WG Tasks, cont'd

- Identify *DomainProfile* Properties
  - define SCA-specific properties
  - use PC-based development tools with the CF run-time components to automate the generation of tailored *DomainProfiles*
- Identify Critical Interfaces
  - expand HW class definitions
  - define general guidance for INFOSEC boundaries
- Complete CF IDL
  - updates from NAPI definitions
  - System Control functions

SCA Definition
WG Tasks, cont'd

- Complete Network Architecture and NAPI definition
  - incorporate NAPIs into CF structure
  - complete use cases and examples of network crossbanding
- Complete CF Use Case analysis
- Incorporate 2A / 2B developer and industry comments
  - feedback from prototype development will keep the SCA "realizable"
- Complete the MLS Plan
- Complete Draft Key Management Plan
- Complete Secure Software Download / OTAP Plan
  - covered by Security WG discussion

CCB

- Co-chaired by Architecture IPT lead and Government representative
- Standing members include representatives from working groups, CM
- Maintain configuration and supporting documentation, with relevant dox posted on web sites (consortium/Government-only and industry-accessible)

Support Working Group

- Develop JTRS Support Plan addressing the management, upgrade, and control of hardware and software (in Step 3)
  - the CM process will cover the JTR system, radio hardware, radio software including the OE and waveforms
- Identify the new logistics and maintenance concepts required, based on commercial practices
- Develop the SCA CM Plan for JTRS, implementing elements needed for Step 2

Security Working Group

- Refine Security Architecture
- Do Draft Key Management Plan
- Do Threat Analysis
- Support Third Party participation for Standard Interfaces and Attributes
- Do MLS Plan / Secure O/S Trade Study, Demonstrate Tagging Scheme, Demonstrate Secure Software Download to include Digital Signature, Identify Critical CORBA Security Features

Prototype IPT
Roles & Responsibilities

- Direct and coordinate development of the JTRS Core Framework Prototype
- Direct and coordinate “co-development” of the JTRS Core Framework test environment
- Coordinate Application/Porting of the Core Framework
- Coordinate Application of the Software Communications Architecture:
  - Ensure that resulting clarification information is clearly and fairly disseminated to all MSRC member companies.
- Deliver prototypes and documentation for validation
- Report on prototype status
- Responsible to direct and coordinate technical and product interchange for waveform porting between individual Step 2A prototypes.

Prototype IPT
Roles & Responsibilities

- Be proactive to provide feedback to the Architecture IPT from company prototype development (modification, clarification, and maturation of the SCA).
- Provide feedback on validation questions/issues to the Validation IPT from the prototype developments .
- 'Standardize' how prototype documentation is presented to the consortium and to the government. This will include providing formats and outlines for specs, reports, etc.
- Responsible for preparing Prototype Requirements Documents
- Serve as the point of contact between the government and the MSRC prototypes.
- Monitor & report on GFE status
- Report on Waveform development status

Government Interaction

- Monitor prototype status
- Facilitate proprietary information interchange with respect to prototypes between individual member companies and the Government

Validation IPT Charter

- Validate that the SCA as defined is usable by hardware and software developers
  - Includes usability by third parties
- Verify that the application of the SCA results in hardware and software products that provide the capabilities required by the JTRS ORD and Step 2A SOO

Validation IPT Roles and Responsibilities

- Insure SCA requirements are verifiable.
- Define methods to verify SCA specification requirements.
- Develop the overall Validation Plan for Step 2.
- Conduct the formal verification and validation process on Step 2 prototypes.

Validation IPT Roles and Responsibilities

- Prepare a Validation Final Report.
- Provide a means for Government participation in the validation process.
- Support the Government in establishing a JTRS certification process.

SCA and ORD Traceability

- Capture requirements traceability through DOORS
  - Use attribute feature to identify verification method
  - Insure traceability from validation plan / procedure back to SCA, ORD

Interoperability Demonstrations

- Prototype demonstrations conducted at Raytheon lab facilities
  - Each prototype employs unique combination of hardware, software
  - Demonstrate interoperability with legacy radios
  - Formal CM control maintained by Systems IPT
  - Maintain status of verification / validation conducted, incident reports and analysis

Validation Report

- Individual Prototype validation report
  - Identify compliance to SCA
  - Describes results of interoperability testing and/or porting to show ORD coverage
- Final Report encompasses all validation activity, submitted at end of Step 2A
  - Discusses findings of validation
  - Recommends future effort or changes to SCA
- Updates for 2B porting and options